

An average of 8 determinations of metabolism with this machine on 6 different subjects gave results which varied by less than 2% from that obtained under exactly similar conditions with a standard machine. This is within the requirements of clinical calorimetry.

9265 P

Total Thyroidectomy for Human Diabetes Insipidus.

THOMAS FINDLEY, JR., AND PETER HEINBECKER.

From the Departments of Medicine and Surgery, Washington University and Barnes Hospital, St. Louis, Mo.

Among the indications that the thyroid may play an important rôle in water metabolism are several pieces of evidence which suggest that total thyroidectomy might appreciably ameliorate the symptoms of human diabetes insipidus: Mahoney and Sheehan¹ abolished experimental temporary diabetes insipidus in dogs by this procedure and reëstablished the polyuria by feeding thyroid substance; Fisher and Ingram² obtained similar though less striking results in cats; others^{3, 4} found that in thyroidectomized dogs anterior pituitary extract had no diuretic effect; and Strauss⁵ once saw clinical diabetes insipidus disappear with the onset of spontaneous myxedema. It was anticipated that species differences might spell failure in the human subject, for anterior lobe extracts do not induce polyuria in normal rats⁶ and Stern and Gilligan⁷ found that the responses to water-drinking and to pituitrin are similar in normal subjects and in those with artificial myxedema. Our patient was fully aware of the experimental nature of the proposed operation and willingly cooperated. We have seen no previous reports of similar studies in man or monkeys.

W. D., a 55-year-old colored male with central nervous system syphilis and diabetes insipidus of 3 years' duration which had not yielded to antiluetic therapy, underwent complete thyroidectomy on

¹ Mahoney, W., and Sheehan, D., *Am. J. Physiol.*, 1935, **112**, 250.

² Fisher, C., and Ingram, W. R., *Arch. Int. Med.*, 1936, **58**, 117.

³ Barnes, B. O., Regan, J. F., and Bueno, J. G., *Am. J. Physiol.*, 1933, **105**, 559.

⁴ Biasotti, A., *Compt. rend. Soc. de biol.*, 1934, **115**, 329.

⁵ Strauss, L., *Deutsche med. Wchenschr.*, 1920, **6**, 939.

⁶ White, H. L., *Am. J. Physiol.*, 1937, **119**, 5.

⁷ Stern, B., and Gilligan, D. R., *PROC. SOC. EXP. BIOL. AND MED.*, 1934, **32**, 843.

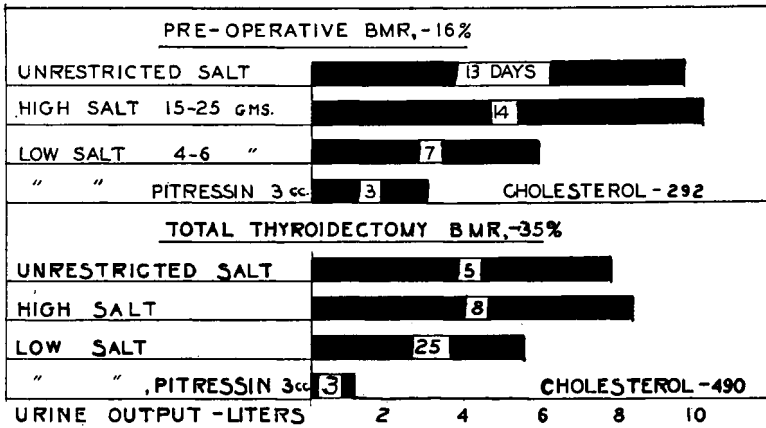


FIG. 1.

Urine Output Before and After Total Thyroidectomy.

Each rectangle represents the average 24-hour urine flow for the number of days enclosed within it. Fluid intake was unrestricted throughout; the values are not recorded because they closely paralleled the urine volumes in every period.

August 1, 1936. The results will be discussed in detail elsewhere but the accompanying chart shows that no striking diminution in urine output resulted. On a low-salt diet the average 24-hour output of urine was essentially unchanged by thyroidectomy, but urine volume was increased less by salt administration and diminished more by pitressin after operation than before. It is difficult to evaluate subjective reactions but it seems worth recording that the patient insists that the thirst and polyuria are much less distressing than before. Our conclusion, however, is that total ablation of the thyroid is about as effectively antidiuretic as a low-salt diet.

Conclusions. Total thyroidectomy on a case of clinical diabetes insipidus diminished the diuretic effect of sodium chloride and increased the antidiuretic effect of pitressin. It failed, however, to reduce urine flow below the limits set by a low-salt diet.